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(54) **METHODS AND APPARATUSES FOR IMPEDANCE-BASED GAS DETECTION FOR MICROFLUIDIC SYSTEMS**

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(57) **ABSTRACT**

Methods and apparatuses for detection of gas bubbles in a microchannel configured for a conductive fluid to flow therethrough. The methods and apparatuses utilize a plate and at least two aligned electrodes embedded within the plate. The plate is configured to be located over the microchannel such that the at least two aligned electrodes are located along a length of the microchannel in the flow direction. Impedance is measured between the electrodes, and the percentage of gas within the fluid flowing through the microchannel is measured based on the measured impedance between the electrodes.

11 Claims, 5 Drawing Sheets